



# GÖTEBORGS UNIVERSITET HANDELSHÖGSKOLAN

## Placing 192 Billion SEK in the Hands of People Who Doesn't Care *A study of Involvement within the Swedish Premium Pension System*

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# Abstract

Upon investing in financial products consumers make important choices which in the long run might affect both their economic and mental welfare. A wise investment might affect one's ability to retire, purchase a home or aid for one's children. However, there is a financial product in Sweden which everyone with a taxable income invest in by default but almost 40 percent does not seem to care about – the premium pension.

Numbers from TNS Sifo's investigation in 2014 show troubling results where 28 percent of the premium pension investors have the default option "because it just happened" and 9 percent does not even know if they have the default option or not. Meanwhile, more than 33 percent of women and 20 percent of men are worried about their retirement (Björneke, et al., 2014).

The aim of the thesis was to investigate the relationship between these low levels of involvement and four different key areas of the premium pension system. The four chosen areas were unawareness, self-deception, the conscious choice and the default bias. The investigation was performed through the distribution of a survey built on theories from consumer behaviour within financial services.

After statistically analysing the results from the survey it was concluded that the respondents' involvement levels did not affect neither their interpretation of ambiguous information nor whether or not the investors had made a conscious choice. However, the results proved an unawareness of the risk level of the default option and a big impact of cognitive effort, a symptom of the default bias.

Only one out of 43 respondents was aware of the actual risk level of the default option whilst the majority vastly underestimated it. Meanwhile, the majority of the respondents who had not made a conscious choice stated that it was effortful as their main reason for not making one. The study thereby concludes that there are shortcomings within the system and that the Retirement Authority in Sweden therefore need to improve their communication with the investors in order to lessen their worry and avoid potential future feelings of betrayal.

Keywords: Involvement, Consumer Behaviour within Financial Markets, Self-Deception, Default bias, Premium pension, AP7 SÅfa

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# 1. Introduction

Upon investing in a financial product, the consumers make a vital choice that will affect their ability to retire, to purchase a home, financially aid their children and many other welfare related questions (Wilcox, 2003). In other words, a poor investment decision, might undermine the consumers' well-being in old age (Lusardi & Mitchell, 2007), especially as a one percent difference rate over 30 years might result in a difference in wealth accumulation of more than 50 000 dollars\* (Lichtenstein, et al., 1999). In consequence, the aggregated poor decisions of the consumers in a country might result in a reduced purchasing power among the middle class, in turn causing a decline in the nation's financial growth. This probability is especially troublesome considering the widespread financial illiteracy in the world (Lusardi & Mitchell, 2007) and that many consumers do indeed make poor investment choices (Lichtenstein, et al., 1999).

In Sweden, this matter is especially important as the public state pension since 2000 is partly based on mutual fund investments (Pensionsmyndigheten, 2016), making the entire working population investors. If a majority of these investors continuously and systematically make poor investment decisions, it might risk the national economy. Therefore, it is more important than ever to investigate how and if consumers interpret and understand complex financial services.

Further, extensive research from the Retirement Authority and Fonbolagens Förening have yielded troubling results regarding the mental welfare of the individuals within the system. More than 33 percent of the women are worried about their retirement and 20 percent of men (Björneke, et al., 2014). At the same time, 28 percent of the investors have the default alternative because "it just happened", while 9 percent does not even know whether they have the default alternative or not (TNS Sifo Prospera, 2014), indicating extremely low levels of involvement. In total, these consumers with very low levels of involvement were at the end of 2014 in control of almost 192 billion SEK (Appendix 3, formula 2).

\* Around 437 310 SEK 2016-05

# 1.1 Background

*The background chapter will begin with a brief explanation of the pension system in Sweden. Following this is an investigation of the current situation within the premium pension system and a problem analysis of the consequences of the current situation.*

## 1.1.1 The Pension System in Sweden

The retirees in Sweden receive their pension from three different sources. First, there is the money they have saved themselves, second the occupational pension which the retiree receives from their employer and third the general pension, handled by the government. The general pension in turn constitutes of two parts, the income based pension and the premium pension, (Pensionsmyndigheten, 2016, 1) which is the focus of this study. If an individual has had low to none taxable income during their life, he/she might also be entitled to the state funded guarantee pension (Pensionsmyndigheten, 2016, 2).

The way the premium pension works is that every year 2.5 percent of the individuals taxed incomes are invested in mutual funds on the behalf of the consumer. Unlike the rest of the general pension the premium pension is individual, and within the individual's control. He or she cannot choose to not invest the money, but in what funds among the given alternatives it should be invested. If the consumer does not make a choice, the money is invested in the default alternative, AP7 S fa. (Pensionsmyndigheten, 2016, 3) At the end of 2014, 32.4 percent of the total assets within the system was placed in AP7 S fa, representing 245.7 billion SEK. These assets were owned by 45 percent of the investors. (Norrby, 2015)

## 1.1.2 The Current Situation

Through the premium pension system the entire Swedish population with some sort of taxable income is regularly investing in mutual funds. According to the Retirement Authority, 45 percent of the investors have the default alternative AP7 (Pensionsmyndigheten, 2014), but in their investigation of the Swedish mutual fund saving, TNS Sifo Prospera (2014) concluded that 39 percent had the default alternative. The difference can partly be explained by the 9 percent of the respondents in the investigation who replied that they did not know if they had the default alternative or not or did not answer the question.

Out of the 39 percent who responded that they have the default alternative 10 percent reported that it was a conscious choice, 1 percent did not know why and 28 percent responded that "it just happened" (TNS Sifo Prospera, 2014).

At the moment, all the information necessary to comprehend and take deliberate decisions regarding one's premium pension is available through the Swedish Retirement Authority and external sources. Still, almost 40 percent of the investors (TNS Sifo Prospera, 2014) seem to have made no effort to process nor comprehend this available information. As the effort made to process and comprehend information is driven by involvement (Celsi & Olson, 1988) it is likely that these investors simply does not feel involved in their premium pension, i.e. it is not perceived as personally relevant.

## 1.1.3 Problem Analysis of the Current Situation

The aim of the study is not to determine whether it is more advantageous to stay with the default alternative or to choose other alternatives. Indeed, the investors with the default alternative, AP7 S fa, have had a higher average return than the investors with a different

portfolio at the end of 2014, and the fund has shown a very positive development over the past three years (Norrby, 2015). As a consequence, it is at the moment not a monetary problem that so many investors stay with the default alternative whether it is because they are not involved in the product, their premium pension, and therefore have no motivation to change or for any other reasons. Instead, the study argues that there are other, nonmonetary risks, involved when such a high percentage of the population show such low levels of involvement.

First of all, the lack of involvement risk resulting in that the consumers do not attempt to comprehend nor process the information presented to them (Celsi & Olson, 1988) regarding their premium pension. Further, as they find the product irrelevant, they might not search for any further information (Hippel & Trivers, 2011). As a consequence, the consumers do not know what they invest 2.5 percent of their yearly income in. With an average salary in Sweden of 31 400 SEK/ month (Statistiska Central Byrån, 2014), the premium pension constitutes of on average 9 420 SEK/year. If the consumers do not know what they are investing in, they are likely to be satisfied as long as times are good, but when the market turns and they receive lower than average returns it might result in a feeling of mistrust towards the authorities, who one feels were responsible for making wise decisions.

This possible outcome, where the consumers mistrust the authorities, is especially troublesome in this case, as AP7 is a relatively high risk investment, meaning that when the market turns, so will AP7 (Fondbolagens förenings pensionsarbetsgrupp, 2015). This is a completely conscious choice from the responsible authority as high risk might be rewarded with high returns and their assumption is that in the long run, the high risk level will result in higher rewards than losses (Pensionsmyndigheten, 2016, 4). However, as the investors in the fund are generally characterized with a medium or low motivation (TNS Sifo Prospera, 2014), they are likely to be unaware of the high risk, which could potentially lead to a feeling of betrayal if the investor lose a lot of money, resulting in a mistrust in the system and the authorities. This argument is further supported by the fact that within the premium pension system, there is no difference in the risk willingness between the sexes (Fondbolagens förenings pensionsarbetsgrupp, 2015). This is an interesting notion as all previous investigations, including the one performed by TNS Sifo Prospera (2014) show a lower risk willingness among women than men. In the premium pension system, however, women might simply not know that they are taking on bigger risks by not making a conscious choice.

Secondly, the Retirement Authority has performed extensive quantitative research on the investor's feelings regarding the Swedish retirement system, and found that more than 33 percent of women and 20 percent of men are worried about their retirement. The lower interest and knowledge the respondents have regarding retirement questions, the more worried they are. Further, the less trust in the retirement authority and the system – the more worried they are. (Björneke, et al., 2014). As the lack of knowledge might result in a feeling of betrayal and mistrust, the number of individuals who are worried about their pension might increase as a result of the low motivation to find information about the system and make a conscious choice.

The low motivation among 38 percent of the respondents is therefore not only a potential monetary welfare problem but a psychological one. It is therefore interesting to investigate what might lay behind the low motivation.

## 1.2 Purpose

The purpose of this study is to problematize the current situation within the Swedish premium pension system. More specifically, the study aims to investigate the role of involvement in the system, and how this might influence different important parts of the consumer welfare.

On a microeconomic level the confirmed low involvement (Section 1.1.2) is troublesome as it is likely to affect the well-being of the individual. From a monetary perspective, there is at the moment no problem with staying with the default option as it on average generates better returns than the funds of the investors who have chosen to leave the default option (Fondbolagens förenings pensionsarbetsgrupp, 2015). However, from a psychological perspective, there is a risk that the individual might feel betrayed and disappointed if the market turns and he or she loses money, resulting in a lower level of trust for the authorities. As individuals with lower trust level are more worried about their retirement (Björneke, et al., 2014), this might result in psychological burdens for the individual.

Meanwhile, on a macroeconomic level are the individual with low involvement levels in control of almost 192 billion SEK, exclusively invested in AP7 (Appendix 3, formula 1). As a consequence, the aggregated lost purchasing power if the market, and with it AP7, would fall, is troublesome.

As a consequence of the micro- and macroeconomic risks of a low involvement level, the study strives to investigate the relationship between involvement level and different important parts of the premium pension system. By doing so, the study strives to determine if changes must be made to how information is communicated to the investors within the system.

The study will pay special attention to the role of self-deception within the premium pension system, as the majority of the biases concerned with information processing- and interpretation can be found within this classification. (Section 2.2)

The general aim of the thesis is therefore to investigate how an investor's involvement level might affect his or her perception of different key areas of the premium pension system.



## 1.3 Research Questions

In order to investigate how the involvement level affect different parts of the premium pension system, four hypotheses were formulated to address four different problematic areas related to low involvement.

1. Are the investors aware of the high risk level of the default option?
2. Do investors interpret new, neutral, information in line with their current involvement level?
3. Do the investors' current motivational levels affect whether or not they have made a conscious decision?
4. Are the investors hindered from making a conscious choice by the default bias?

*H1: The investors in the premium pension system are not aware of the risk level of AP7*

As first discussed in previous chapters (Section 1.1.3), the in comparison high risk willingness among investors in the premium pension system might be due to the fact that a lot of the investors are unaware of the fact that they are taking on risks. This unawareness of the actual risk level of their default investment is in this study argued to be linked to possible negative effects on the investors' mental welfare, particularly their worry for their retirement.

The rejection or acceptance of the first hypothesis is relevant to the study as it concerns possible consequences of low involvement within the premium pension system.

*H<sub>2</sub>: The investors' involvement levels will affect how they interpret ambiguous text*

At the moment, the Retirement Authority seems to strive to provide sufficient, but somewhat neutral information to the Swedish investors. Extensive research (Martenson, 2005) (Jacoby, et al., 2001) (Ritter, 2003) have already proven that financial knowledge alone is not enough to make wise financial decisions, the consumer must also be involved. Thereby, simply providing consumers with information might not be enough to hinder the individual from relying on biases.

For a consumer to be involved in something, it must be perceived as personally relevant, i.e. in line with fulfilling the consumer's current goals (Celsi & Olson, 1988). Once the consumer is involved, he or she might, according to Hirshleifer (2001), interpret ambiguous information in line with his or her current goals and motivations because of self-deception\*. Within the premium pension system, this would be problematic, as it would mean that investors who do not believe that there is any need to make a conscious decision will interpret new information as that there is no need to make a conscious decision. If so, simply presenting them with more information is not enough. Instead, measures must be taken to influence the investors' involvement levels.

*\*This correlation is further discussed in section 2.4*

*H<sub>3</sub>: The investors' involvement level will influence whether or not they have made a conscious choice*

Much like the investors' involvement levels might influence their interpretation of new information, it might also play a part in whether or not the respondent has made a conscious choice. As an individual's involvement level according to Celsi and Olson (1988) is based on how personally relevant a situation or product is perceived, it is possible that individuals who

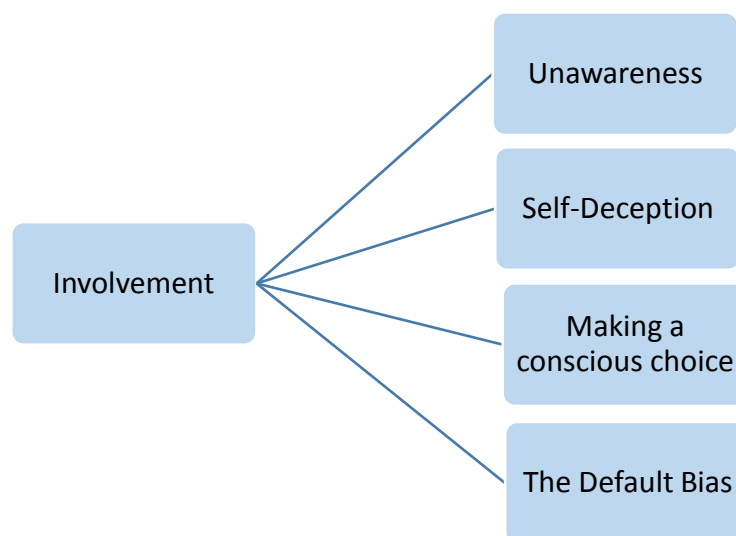
feel that making a decision is more personally relevant also are more likely to have made a conscious decision.

If there is a relationship between involvement level and if individuals have made a conscious choice or not, appealing to the personal relevance of the premium pension could be a way for the authorities to influence the investors towards making a conscious choice.

*H<sub>4</sub>: The investors with a low involvement level are likely to be hindered by the default bias*

Excessive research have shown that individuals tend to stay with the default option when assigned to one (Choi, et al., 2003) (Yu, et al., 2010). For the Retirement Authorities this is somewhat of a dilemma as the premium pension system is mandatory, why respondents who do not want to make a decision have to end up somewhere. At the same time, assigning persons to a default option is risky as this might hinder them from seeking out the alternative that suits them the best (Choi, et al., 2003).

As motivation is one of the factors that might decrease the use of biases (Hirshleifer, 2001), it is likely that individuals with a lower involvement level, i.e. lower motivation, is hindered by the default bias.



*Figure 1 The Relationship Between the four Hypotheses*

## 2. Theoretical Framework

*In the theoretical chapter the concepts of self-deception and involvement are more thoroughly explained and related to each other and the tendency of consumers to fall back on the default bias. The chapter begins with an overview of the field in order to aid the unexperienced reader in comprehending the theoretical framework. Section 2.4; “Self-Deception and Involvement”, is an argumentative section included in order to aid the reader in relating the two concepts and does not solely rely on previously established research as the rest of the theoretical chapter.*

### 2.1 Introduction to Consumer Behaviour within Financial Services

The traditional economic scholar describes the consumer as a completely rational being who take in all available information and act according to this information and their preferences to maximize his or her utility. Consumer Behaviour within financial services challenges this approach by bringing psychological insights into economics. The purpose of this combination is to better understand how consumers actually behave, which in turn can have big marketing implications. (Chuah & Devlin, 2011)

The psychological insights introduced into the field mainly derive from cognitive psychology, which studies how people think. Cognitive psychology suggests that investors are not only irrational, but also make systematic errors, referred to as biases, when they think. These biases manifest themselves in several ways, such as overconfidence, mental shortcuts, etc. and hinder optimal decision making. (Ritter, 2003)

### 2.2 Self-Deception

The concept of *self-deception* is explained by Hippiel & Trivers (2011) as a necessary tool for the individual to increase confidence and decrease the cognitive load of deception and is according to Hirshleifer (2001) one of three sources of biases.

Biases striving from self-deception are mainly those influencing how we interpret information. In order to be confident about our actions, we must believe that we are right even under unsure circumstances, why we filter incoming information through self-deception (Hippiel & Trivers, 2011). The consequence of this filtering is a favouring of welcome information in line with our current goals and motivations (Hippiel & Trivers, 2011) and an interpretation of ambiguous information as supportive of our previous beliefs (Hirshleifer, 2001). Meanwhile, unwelcome information is disregarded (Hippiel & Trivers, 2011).

Further, these theories of information selection and interpretation also explain the theory of cognitive dissonance (Hirshleifer, 2001), where individuals might alter their preferences to align them with- and justify previously made decisions. This post justification of previous decision is an example of how the mind deceives itself in order to help us believe that we are right and have made the right choice.

Finally, in order for self-deception biases to persist and not be eliminated by rational learning, it must bias the learning process itself (Hirshleifer, 2001). I.e. for the individual to not simply through failure learn that one is not always as correct as one thinks one are, some mechanism must interfere. According to Hirshleifer (2001) this is consistent with the self-

attribution bias which causes individuals to attribute good outcomes to personal skill and ability and bad outcomes to external circumstances outside one's control (Hirshleifer, 2001).

## 2.3 Involvement

Within consumer research, *involvement* is viewed by Celsi and Olson (1988) as the level of perceived relevance, i.e. the product's ability to aid the consumers in fulfilling their personal goals, needs and values.

In their research Celsi and Olson (1988) chose to separate involvement from domain knowledge, arguing that the domain knowledge is relevant to the individual's ability to process information regarding the domain whilst involvement steers the motivation to process said information. Further, Celsi and Olson (1988) found that while domain knowledge aids the consumer in focusing on the relevant pieces of information, it does not influence neither the time spent processing, nor the effort to comprehend, information.

This separation of domain knowledge and involvement is not obvious to other researchers where for example Martenson (2005) defines involvement as; *"the consequence of the combined subjective assessments of motivation, ability and opportunity to seek, access, interpret and evaluate task-relevant information"* (Martenson, 2005, p. 453). Here the ability to seek information and the motivation to understand it is separated but combined. Still, Martenson's definition does not directly contradict the separation of the two, but argues that a consumer would need both to be able to make wise financial decisions (Martenson, 2005).

## 2.4 Involvement and Self-Deception

As the consumer feels involved when something is perceived as relevant, i.e. in line with fulfilling current goals, needs and values (Celsi & Olson, 1988) and self-deception causes the consumer to favour, and interpret ambiguous, information in line with one's current goals and motivations (Hirshleifer, 2001) the two concepts are in this study argued to be related. As an increased level of involvement according to Celsi and Olson (1988) will increase the time spent processing and the effort to comprehend information one might suspect that an individual with a high involvement level also would make better decisions. However, because of self-deception this might not be the case. Instead, a highly involved consumer might spend more time processing the information but still favour welcome information and interpret ambiguous information in line with her current goals and motivations. I.e. the increased time spent processing and comprehending information might not yield a better outcome if the information processed and comprehended only is the favoured one.

The correlation between the two concepts might be even more troublesome if looking at the other end of the spectrum. Here, consumers with a low involvement are already unmotivated to understand and comprehend information (Celsi & Olson, 1988) as the product feels irrelevant to achieving personal goals. The consumer then already believes the product to be irrelevant, and when presented with somewhat ambiguous information, self-deception will aid the consumer in interpreting the information as that they are right and that the product is irrelevant.

In summary self-deception is likely to strengthen the course of involvement. If consumers with a high involvement level are presented with ambiguous information, they are likely to interpret it as that the product is relevant. On the other hand, if consumers with a low involvement level are presented with ambiguous information, they are likely to interpret it

as that the product is irrelevant. The risk of this conclusion is that consumers who are uninvolved will stay uninvolved if not exposed to active measures from a third party.

## 2.5 The default bias

If the consumer does not perceive a product as relevant, the consumer will spend less time trying to understand the information surrounding it and thus relying more on cognitive biases (Martenson, 2005). This is problematic in the premium pension market considering that such reliance according to Martenson (2005) often result in inferior financial decisions.

One such bias is the default bias which describes the human tendency to stay with the default option if assigned to one (Yu, et al., 2010). Over the years, researchers have presented a number of motivations to why this might occur.

First of all, the default option might be perceived by an individual as the recommended, advised or optimal one (Choi, et al., 2003) (Yu, et al., 2010). Secondly, switching involves cognitive effort (Yu, et al., 2010). Thirdly, the default bias might be an effect of loss aversion. (Choi, et al., 2003)(Yu, et al., 2010). Loss aversion describes the fact that losses, relative to a reference point, loom larger than gains (Kahneman & Tversky, 1984). When assigned to a default bias, it might become the individual's reference point, causing all results better than the default option's as winnings and all results worse than the default option's as losses (Choi, et al., 2003). As a result, individuals might want to stay with the default option in order to avoid making a choice that would result in a worse outcome, which would then be perceived as a loss.

## 2.6 Reducing the use of biases

There are mainly two reasons to why we cannot learn to not use biased decision-making even if we are aware of the biases existence. First of all, learning is simply too hard, (Hirshleifer, 2001) the biases are too rooted in our cognitive processes to be ignored or thought around. Secondly, the biases themselves prevent it, primarily through self-deception. As we are inclined to think that we are good decision makers, we are less likely to discover faults in our own decision processes and thereby less likely to attempt to alter said processes (Hirshleifer, 2001).

Although we cannot eliminate our biases there are ways to reduce them. Training, repetitions and increased rewards have the potential to alter our decision making in a favourable manner. Further, some cognitive biases tend to be stronger among individuals with low cognitive ability. (Hirshleifer, 2001).

Consumer	Characteristics	Results of self-deception	Risks
If involved in premium pension	Will actively attempt to comprehend and process information about the premium pension	Activity	Overlooking unwelcome information
If not involved in premium pension	Will not attempt to comprehend nor process information about the premium pension	Inactivity	Falling back on the default bias
			Worrying about retirement
			Unknowingly taking on higher risks than comfortable with

*Table 1 Summary of Theory and Purpose*

## 3. Method

### 3.1 Quantitative Research

Due to the fact that the study aim to test a theory rather than generating a new one, a quantitative approach is preferable (Bryman & Bell, 2013, p. 50). This means that the theoretical research takes place prior to the study itself and that the found key concepts lead the study forward as a contrast to a qualitative approach where key concepts and theories are a consequence of gathered data (Bryman & Bell, 2013, p. 420). Finally, the main focus within a quantitative approach is the relationship between variables rather than the participants' behaviour and the specific situation (Bryman & Bell, 2013, pp. 420 - 421).

As the study seeks to test existing theories in a statistical manner, a quantitative approach is not only advised but necessary. While a qualitative study might offer deeper insights into the mind of a specific individual a quantitative approach offer the opportunity to statistically test and ensure relationships between variables rather than only making assumptions regarding said relationships.

As the thesis aim to investigate the influence of involvement on other areas of the premium pension system, the relationship between variables is highly relevant. By using involvement as an independent, or explanatory, variable it is possible to statistically ensure how involvement influence other variables.

### 3.2 Collection of Data

The study relies on both primary data collected through a survey and secondary data, which mainly consists of publicly published statistics from TNS Sifo and the Swedish Retirement Authority.

As the primary data derive from a convenience sample, it is not as reliable as one might wish. Through using a convenience sample, one opens up for a large number of sampling problems, and could simply conclude that the sample will not be representative of all the investors within the Swedish premium pension system.

A benefit from using secondary data from public statistics is on the other hand that the data often have a high quality (Bryman & Bell, 2013, p. 325) and is readily available. Drawbacks include that the data might have been collected for a different purpose why it lacks key variables (Bryman & Bell, 2013, p. 330). In this study the data will only be used for collecting background information about the current situation rather than being analysed further, why it is a good addition to the primary data.

### 3.3 Selection of Respondents

In order for the data to be representative and generalizable it must derive from a representative sample, preferably selected through randomized sampling (Bryman & Bell, 2013, p. 189). To create a representative sample of the entire Swedish population between 18 and 76 would however be too time consuming and costly for this study. Instead, a convenience sample was selected. In comparison, the research conducted by TNS Sifo (2014) of the mutual fund investors in Sweden took two months and 1500 telephone interviews (TNS Sifo Prospera, 2014).

The main drawback from using convenience sampling is that the results from the study will not be generalizable over the larger population (Bryman & Bell, 2013, p. 205). Nevertheless, the study does not aspire to achieve generalizable results for the entire Swedish population within the premium pension system. Instead, the study aims to investigate whether there is a relationship between involvement and behaviour within the premium pension system on a smaller scale, in order to determine whether or not further research is needed on a larger scale. According to Bryman and Bell (2013) this is an acceptable use of convenience sampling (Bryman & Bell, 2013, p. 205).

The data in the study were collected using convenience sampling through a survey distributed over Facebook, where willing individuals could respond. The selection was somewhat randomized in that no respondent were specifically selected to respond, but rather willing individuals themselves chose to respond. The survey was publicly displayed.

Over the years some researchers have questioned the use of Facebook as a sufficient platform for viable data collection. Later research have however found that Facebook is indeed a sufficient platform and that the collected data is just as valid and diverse as data from respondents who were recruited through other means, e.g. undergraduate student pools (Cate, et al., 2014).

### 3.4 Limitations and Assumptions

The main limitation of the study is the time constraint as a Bachelor Thesis is carried out over a set number of weeks. The consequence of the limitation is the use of a general theoretical framework of selected academic publications rather than in depth-studies. Further, the study was restricted to include the estimated most pressing consequences of low involvement; the investors unawareness, the risk of self-deception and the default bias. The final consequence of the time constraint is the use of convenience sampling, which in turn makes it impossible to generalize the findings to the bigger population.

Further, this study seeks to investigate the human behaviour within the premium pension system through the use of terms and assumptions from the field of consumer behaviour within financial services. As a consequence, it is assumed that the investors do not act rationally, but instead are hindered from making optimal decisions by cognitive biases.

### 3.5 Reliability and Validity

Two important concepts within quantitative research is reliability and validity where reliability concerns whether or not we can trust the measurements and validity regards whether or not a test actually measures what it is supposed to or not (Bryman & Bell, 2013, pp. 170 - 173).

Regarding reliability three factors are important when deciding if a measurement is reliable; stability, internal reliability and internal judgmental reliability. Internal reliability and internal judgmental reliability concerns factors which are not relevant for this study. Stability demands stability over time, meaning that the attitudes of the sample cannot fluctuate too much over a short period of time (Bryman & Bell, 2013, p. 171). As the opinions and estimations of the respondents are only measured once within the study, it is not possible to with certainty state that a second survey would yield the exact same results. However, the things measured in the survey such as interest in finance, estimated risk level of AP7 etc. should stay fairly stable over a short period of time.



There are several different ways to measure the validity in a concept, where construct validity describes the importance of that the hypotheses derive from the theoretical framework are relevant for the concept in question (Bryman & Bell, 2013, p. 173). Once again, it is only possible to assume the sufficiency of the hypotheses, but all of them build on already established relationships. It has been proven that individuals are affected by the default bias when assigned to a default option (Choi, et al., 2003) and that there is a link between self-deception and the interpretation of ambiguous text (Hirshleifer, 2001). The main issue would be if the measures for involvement are not sufficient to actually measure involvement, but as care have been taken to ensure that they derive from the theoretical framework of the study, the study in whole should be considered to be valid.

### 3.6 Analysing the data

The data collected through the survey will be statistically analysed through the use of SPSS.

#### 3.6.1 Linear Regression Analysis

Regression analysis is a process whereby a mathematical model is constructed to predict or determine one variable by another variable or variables (Cortinhas & Black, 2012, p. 493). In the case of the study, the dependent variable (y), i.e. the variable to be predicted, is the interpretation of the ambiguous information. The independent variable (x), i.e. the predictor or explanatory variable, is the level of involvement.

As the responses to the dependent variable will consist of categorical information, dummy variables must be used. For some relationships in the study, the dependent variable will be a dummy variable. This is not possible in a linear regression analysis, why in these cases, binomial logistic regression will be used instead.

#### 3.6.2 Binomial Logistic Regression

In the binary logistic regression model the dependent variable (y) only takes one of two values, why it's compatible with the set of data the survey will result in.

The two factors of main interest from the SPSS output is the significance level of the relationship in question (.sig) and the B coefficient. The statistical level of significance is determined beforehand and denotes the risk level one is willing to accept when concluding a relationship exists (Bryman & Bell, 2013, p. 361). In this study a risk level of 5 percent is used, which is the highest scientifically accepted level. As long as the relationships has a significance level of less than 0.05 we can with 95 percent certainty reject the null hypothesis that there is no relationship between the variables.

The B coefficient denotes the relationship between the independent and the dependent variable. With a positive b coefficient an increase in the independent variable leads to an increase in the dependent variable. If the b coefficient is negative, the opposite is true.

### 3.7 The Survey

The use of a survey has several benefits. First of all they are quickly administered (Bryman & Bell, 2013, p. 246) which is beneficial as one of the clearest limitation of the study is time constraint. Further, surveys rule out any influence from the interviewer and exclude any possible variation of question wording between interview occasions (Bryman & Bell, 2013, p. 246).

There are however limitations as well as benefits to the use of surveys. One is that the researchers will not get any opportunity to explain the questions to the respondent (Bryman & Bell, 2013, p. 247). A consequence of this is that if a question is wrongly formulated and invite a different interpretation than sought, there is no way for the researcher to know this. Further limitations include the exclusion of follow up or open-ended questions and the risk of missing important information (Bryman & Bell, 2013, p. 248).

Despite the risk of poorly formulated questions and misunderstandings, the use of a survey offers the opportunity for statistical analysis, which is a clear advantage upon studying the relationship between variables. Other quantitative approaches might offer the same opportunity, but a survey distributed over internet offers the opportunity for the most responses.

### 3.7.1 Survey Design

Different parts of the survey are designed to reject or keep different hypothesis, why the structure of the survey will be divided according to the research hypotheses of the study. The survey was presented in Swedish to increase the availability, as the target group of the study is the Swedish investors. The survey in full can be found in Appendix 2.

#### *H<sub>1</sub>: The investors in the premium pension system are not aware of the risk level of AP7*

In order to determine whether or not the respondents are aware of the risk level of AP7, they will be asked to estimate the risk level of AP7 on a scale from 1 to 7. The scale is thereby the same size as the Synthetic Risk Reward Indicator (SRRI) used within the European Union as a joint risk indicator for consumers (AP7, 2016).

On the SRRI scale AP7 is a 7 (AP7, 2016), why all other responses will indicate that the respondent is not aware of the actual risk level of AP7. If a majority of the respondents are unaware of the risk level, the null hypothesis will be rejected.

#### *H<sub>2</sub>: The respondents' involvement levels will affect how they interpret the ambiguous text*

According to Hirshleifer (2001), individuals will because of self-deception interpret ambiguous, or neutral, information as supportive of our prior motivations. In order to determine if this effect is present, we must first know what the respondent's current motivations are. According to Celsi and Olson (1988) our motivations strive from our involvement level, generating high motivation in contexts related to personally relevant situations or products and low motivation when the situation or product is perceived as irrelevant.

In order to test the relationship between Hirshleifer's (2001) and Celsi and Olson's (1988) theories, first the respondents' domain knowledge and involvement level must be tested, followed by an interpretation of ambiguous text. This relationship can then later be statistically tested to determine if respondents indeed interpret ambiguous information in line with their involvement level. The test of the third hypothesis will therefore have three steps.

1. Investigation of involvement level
2. Interpretation of ambiguous text
3. Binomial logistic regression to determine the relationship between the variables

### *Investigation of involvement level*

According to Celsi and Olson (1988) felt motivation, the motivation to process information, is influenced by feelings of personal relevance, importance and interest. The researchers also found physiological arousal to be a possible influencer, but only denoted this relationship as probable.

Based on Celsi and Olson's (1988) conclusion, four questions were developed to determine the respondents' involvement level:

1. *How interested are you in finance in general?*
2. *How interested are you in your premium pension specifically?*
3. *How important do you think it is to make a conscious decision regarding one's premium pension?*
4. *To what degree do you think you can influence your premium pension?*

The respondents are then asked to rate their answer to each question on a scale from 1 to 5 where 1 is the lowest and 5 the highest level.

### *Interpretation of ambiguous information*

#### *Pre-Test*

In order to be able to present the respondents with neutral information to interpret, one must first determine what neutral information is. In order to do so, a pre-test will be conducted.

In the pre-test five random respondents were asked to interpret three different texts and then respond to for all texts identical questions regarding the interpreted sense of responsibility, whether it is better to pick one's own mutual funds or not and the neutrality of the information.

The first text was retrieved directly from the Retirement authority's webpage and the other two were altered versions of the same text. The purpose of departing in the information actually presented by the authority is to increase the utility of the study, as the results then to a greater degree reflect reality. Further, it was assumed that the Retirement authority gain little or nothing from whether or not the individuals pick their own mutual funds or not, why the information should be somewhat neutral in that aspect.

The pre-survey in full can be found in Appendix 1.

#### *In the Survey*

The most neutral text from the pre-test will be included in the survey, where the respondents will be asked to read it and the answer the following two questions:

1. *After reading the text, I feel that:*
  - It is important to take responsibility for one's premium pension
  - There is no need to take responsibility for one's premium pension
  - I don't think the text says anything about that

2. *After reading the text, I feel that:*

- I don't need to make a decision regarding my premium pension
- I probably need to make a decision regarding my premium pension
- It is good that I have already made a decision about my premium pension
- It doesn't really matter if one makes a decision or not
- I don't think the text says anything about that

As the hypothesis states, the assumption is that the respondents will interpret the text in line with their involvement level. This means that respondents with a high motivational level will interpret the text as that there is a need for personal responsibility and further action and respondents with a low motivational level will do the opposite.

*Binomial logistic regression to determine the relationship between the variables*

In order to determine whether or not the null hypothesis can be rejected, the relationship between the respondents' involvement levels and text interpretation will be statistically investigated through a binomial logistic analysis. In the analysis, the respondents' answers to the text interpretation questions will be recoded using dummy variables as follows in table 2 and 3.

The need for dummy variables is due to the fact that the data uses non numerical variables for categorizing the responses. When using dummy variables 1 contains the characteristics of interest and 0 does not.

**Recoding the interpretation of needed responsibility**

Need for responsibility	1
No need for responsibility	0
Neutral	0

*Table 2 Recoding the Results from the Survey using Dummy Variables; interpreted need for responsibility*

**Recoding the need for further action**

Need for further action/action already taken	1
No need for responsibility	0
Neutral	0

*Table 3 Recoding the Results from the Survey using Dummy Variables; interpreted need for further action*

*H<sub>3</sub>: The investors' involvement levels will influence whether or not they have made a conscious Choice*

Just as the involvement level or felt motivation might influence the text interpretation through the link between involvement and self-deception, it might also influence the decision itself, i.e. whether or not the respondent has made a conscious decision regarding his or her premium pension.

In order to determine whether or the respondent's involvement level influence whether or not the respondent have made a conscious choice, the responses to the questions linked to involvement will be analysed in relation to whether or not they have made a conscious choice. As data regarding the respondents' involvement level will be collected in relation to hypothesis 2, the only information missing for hypothesis 3 is whether or not the respondent have made a conscious choice, why they will be asked if they have. The responses will then be recoded for statistical analyse using dummy variables (Table 4).

Recoding conscious choice	
Yes, to invest in other mutual funds	1
Yes, to stay with the default option AP7	1
No	0

Table 4 Recoding the Results from the Survey using Dummy Variables; conscious choice

Other factors which according to the Retirement Authority could influence if the respondent have made a conscious choice or not is their age (Pensionsmyndigheten, 2014), why the respondents will be asked about this as well.

#### H<sub>4</sub>: The investors with a low involvement level are likely to be hindered by the default bias

As increased motivation according to Hirshleifer (2001) decreases the use of biases, the respondent's motivational level should affect how affected the respondent is by the default bias.

According to Choi et al. (2003) and Yu et al. (2010) there are mainly three different sources of the default bias, i.e. the tendency to stay with the default option if assigned to one:

1. The default option is seen as implicit advice
2. The investor does not want to change to another option because of loss aversion
3. Switching involves cognitive effort

As the use of biases according to Hirshleifer (2001) can be decreased by increased cognitive ability, the respondents are also asked about their educational level. The underlying assumption of the question is that individuals with a high educational level in general have a slightly higher cognitive ability. This assumption does not exclude the probability that individuals with lower educational level lack cognitive ability, but rather refer to a more general trend.

#### *Implicit Advice*

In order to test if the respondent view the default option as implicit advice from the authorities, they are asked if they think the Retirement Authority wants them to keep AP7, to invest in other funds or if they don't think it matters to the authorities. As a follow up question, the respondents are asked how well they think AP7 performs compared to other mutual funds.

If the default option is seen as implicit advice, the point of view of the respondents should be that the Retirement Authority wants them to stay with the default option and that the default option is better than average. If the respondent does not think the default option is better than average, then it would be a poor advice and probably not particularly motivating towards staying with the default option.

#### *Loss Aversion*

If the default option becomes the reference point, outcomes worse than the one that one would have had if remaining with the default option is viewed as losses and better outcomes are seen as gains. As individuals are more sensitive to losses than gains, one might choose to stay with the default option because a worse outcome than the default option would be more painful than a positive outcome would be joyful. (Kahneman & Tversky, 1984)

To determine if the respondents in the study are subject to loss aversion, they are asked how they think they would feel first if they picked another mutual fund, which generated worse returns than the default option and second if they picked another mutual fund which

generated a better outcome than the default option. If the respondents are subject to loss aversion, they should feel more strongly about a worse outcome than a better one.

#### *Cognitive Effort*

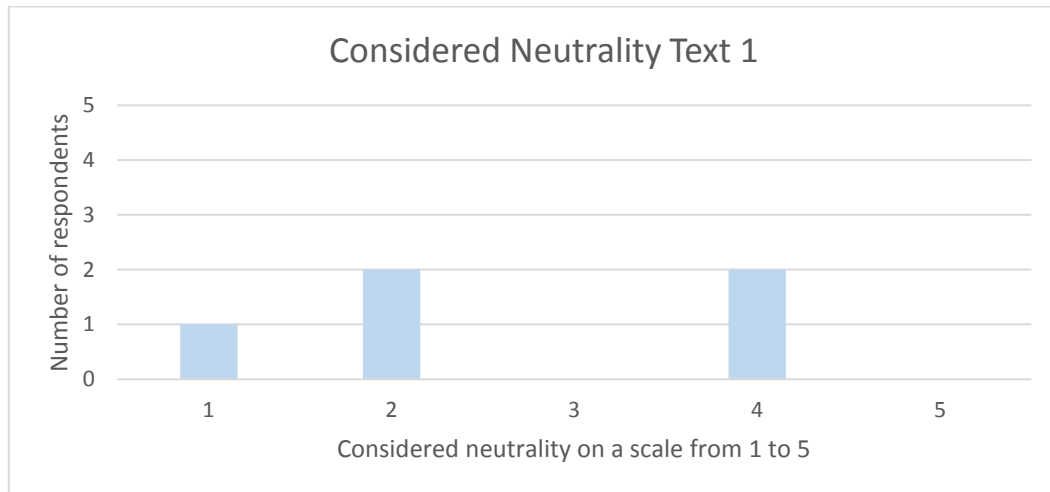
Finally, an individual might be subject to the default bias because it would require a cognitive effort, which the individual want to avoid, to choose another option (Yu, et al., 2010). To determine if the respondents are hindered by cognitive effort, they are asked how they feel when picturing making a conscious choice. If they think it would be much effort, they are expected to respond that it would be effortful. Further, they are expected to respond that the main reason to why they haven't made a choice yet is because it is effortful to do so.

## 4. Results

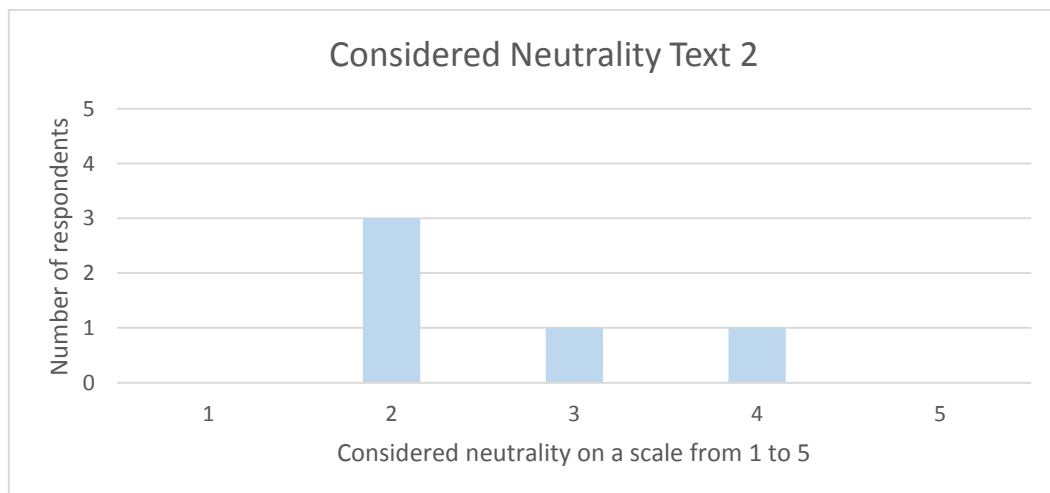
*First the results from the pre-test of neutral information is presented, followed by a descriptive presentation of the results from the survey and finally statistical calculations. The chapter is organized according to the hypotheses.*

### 4.1 Results from the Pre-Test

None of the presented texts were considered to be completely neutral by a majority of the respondents. Nevertheless, the first two texts were considered to be “almost neutral” or “completely neutral” by the majority of the respondents.



*Graph 1 Considered neutrality of the first text in the pre-test*



*Graph 2 Considered neutrality of the second text in the pre-test*

Apart from being neutral, it has to be possible to interpret the information both as “it is important to take personal responsibility for one’s premium pension” and “it is not important to take personal responsibility for one’s premium pension” depending on the respondent’s involvement level. Only one text offered this interpretation, the second one. The first text instead leads the respondents to interpret it as either “it is important to take responsibility for one’s premium pension” or “I don’t think the information say anything about that”.



Graph 3 Perceived need for personal responsibility after reading the second text in the pre-test

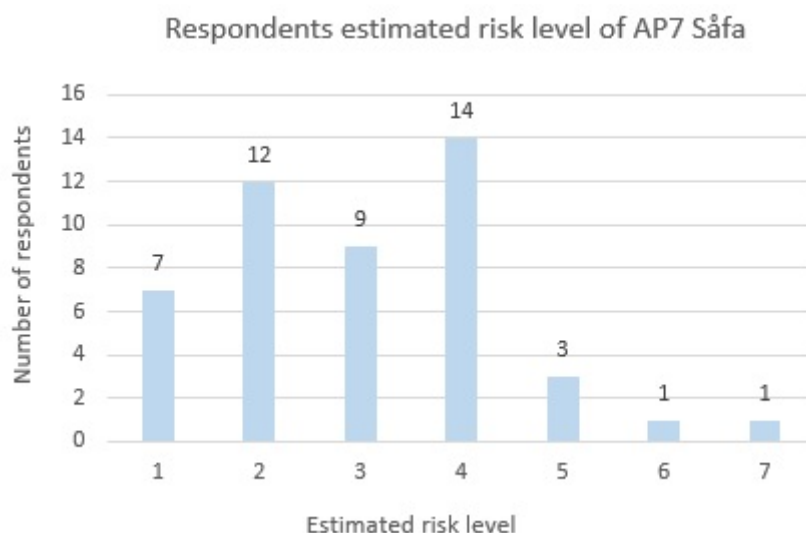
Based on its relative neutrality and the possibility to interpret the text both as communicating the importance of personal responsibility and the unimportance of personal responsibility, the second text was used in the main survey.

The results of the test of neutral information in full can be found in Appendix 1.

## 4.2 Descriptive Results

*H<sub>1</sub>: The investors in the premium pension system are not aware of the risk level of AP7*

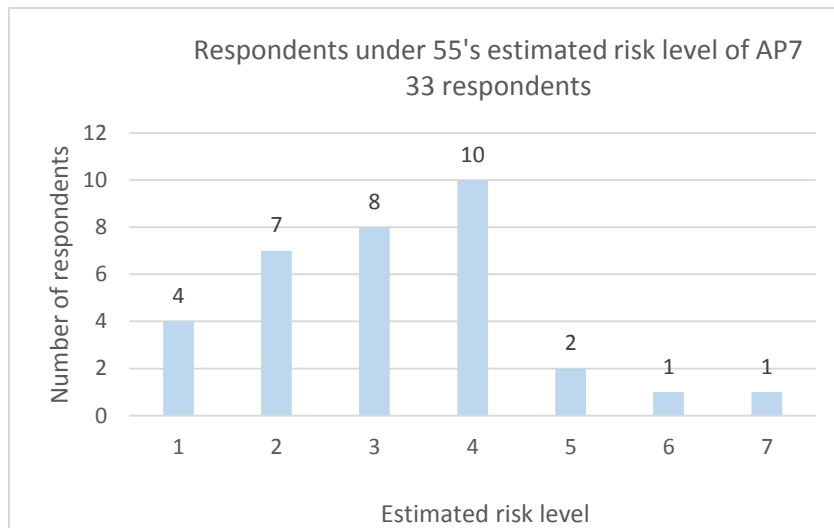
In order to determine whether the respondents were aware of the risk level of the default option AP7 or not, they were asked to estimate the risk level on a scale from 1 to 7. This scale responds to the European Synthetic Risk Reward Indicator (SRRI), which is a risk measurement for mutual funds used within the European Union (AP7, 2016).



Graph 4 The respondents' estimated risk level of the default option, AP7 Sâfa

As AP7 is at risk level 7 for investors under 55 and decrease to 4 for investors over 74 (AP7, 2016), the majority of the respondents seems to be unaware of the actual risk level of the fund (Graph 4).





Graph 5 Respondents under 55s' estimated risk level of the default option, AP7 S fa

As seen in Graph 5, only 1 respondent (3 percent) of the respondents was aware of the risk level of AP7 S fa. 29 of these 33 respondents had their pension invested in AP7.

*H<sub>2</sub>: The respondents' involvement levels will affect how they interpret the ambiguous text*  
*Involvement levels*

In general the respondents were not particularly interested in neither finance in general, nor their premium pension in particular. On the other hand, the majority (55.8 percent) of the respondents found it highly important to make a conscious decision regarding one's premium pension and 39.5 percent of the respondents thought that they to a large degree could influence their premium pension.

Category	Frequency	Percentage
General interest in finance		
Low	19	44,2%
Medium	13	30,2%
High	11	25,6%
Specific interest one's premium pension		
Low	23	53,5%
Medium	15	34,9%
High	5	11,6%
Perceived importance of decision		
Low	7	16,3%
Medium	12	27,9%
High	24	55,8%
Perceived influence over outcome		
Low	8	18,6%
Medium	18	41,9%
High	17	39,5%

Table 5 General interest in finance, specific interest in one's premium pension, importance decision and influence over outcome

### Text interpretation

Regarding the interpretation of the ambiguous text, there were some diversity in the interpretation, but the majority (65 percent) of the respondents felt that “it is important to take responsibility for one’s premium pension” after reading the text.

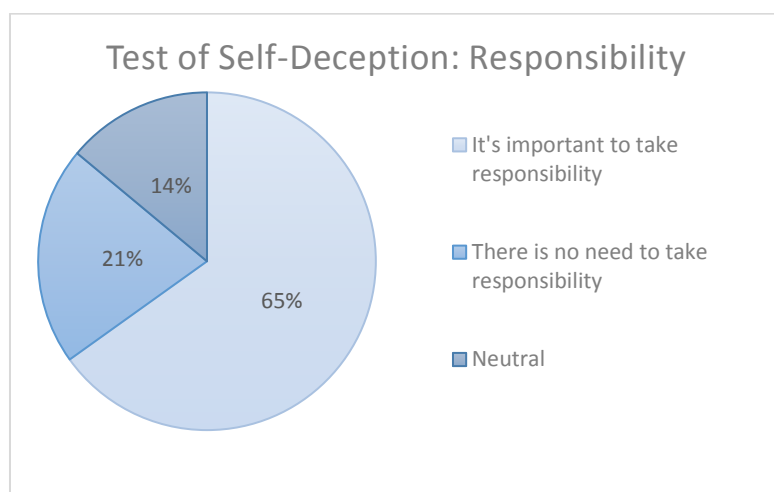


Figure 2 Results from the survey; text interpretation

Regarding the need for further action, a majority (48.4 percent) felt that they should make a decision.

Category	Frequency	Percentage
Test of Self-Deception: Further action		
It doesn't matter if one makes a decision or not	6	14,0%
It's good that I have already made a decision	11	25,6%
I don't need to make a decision	1	2,3%
I should make a decision	21	48,8%
Neutral	4	9,3%

Table 6 Results from the survey; need for further action

### H<sub>3</sub>: The investors' involvement levels will influence whether or not they have made a conscious Choice

There was a total of 43 respondents to the survey out of which around 46 percent had made a conscious decision regarding their premium pension and 54 percent had not.

Category	Frequency	Percentage
Choice		
Yes, to stay with the default option	9	20,9%
Yes, to invest in other mutual funds	11	25,6%
No	23	53,5%

Table 7 Conscious choice premium pension

Demographically, the majority of the respondents (55.8 percent) were 18 – 30 years old and were educated at a bachelor level (58.1 percent).

Category	Frequency	Percentage
Age		
18 - 30	24	55,8%
31 - 40	4	9,3%
41 - 50	5	11,6%
51 - 60	6	14,0%
61 - 70	1	2,3%
71 - 76	1	2,3%
Blank	2	4,7%

Table 8 Respondents age

Category	Frequency	Percentage
Educational level		
Upper secondary school	1	2,3%
High school	10	23,3%
Bachelor's degree	25	58,1%
Master's degree	5	11,6%
Further education	2	4,7%

Table 9 Respondents educational level

H<sub>4</sub>: The investors with a low involvement level are likely to be hindered by the default bias

#### *Implicit Advice*

In their research Choi et al (2003) suggested that one reason to why the respondents do not switch away from the default bias is that it's interpreted as an implicit advice or recommendation. More than one third of the respondents did think that the authorities thought they should stay with the default alternative, but not because it was the best thing to do. Only 16.3 percent thought the default alternative yield above average results compared to other alternatives within the premium pension system.

Category	Frequency	Percentage
Implicit advice: Point of view of the authority		
Stay with the default alternative	16	37,2%
Invest in other mutual funds	8	18,6%
Doesn't matter to them	19	44,2%
Implicit advice: Returns of AP7		
Below average	6	14,0%
Average	30	69,8%
Above average	7	16,3%

Table 10 Implicit advice among the respondents

#### *Loss Aversion*

According to Kahneman and Tversky's (1984) theories regarding loss aversion, losses should loom larger than gains. This was not the case among the respondents of the survey. The majority (62.8%) responded with equally strong feeling for gains and losses (e.g. 2 for a worse result and 4 for a better result). Further, there were more respondents who felt stronger for a better result than there was respondents who felt stronger for a worse result (Table 11).

Category	Frequency	Percent
Loss aversion		
Respondents with a stronger feeling for a worse result	6	14,0%
Respondents with a stronger feeling for a better result	10	23,3%
Neutral respondents	27	62,8%

Table 9 Loss aversion among the respondents

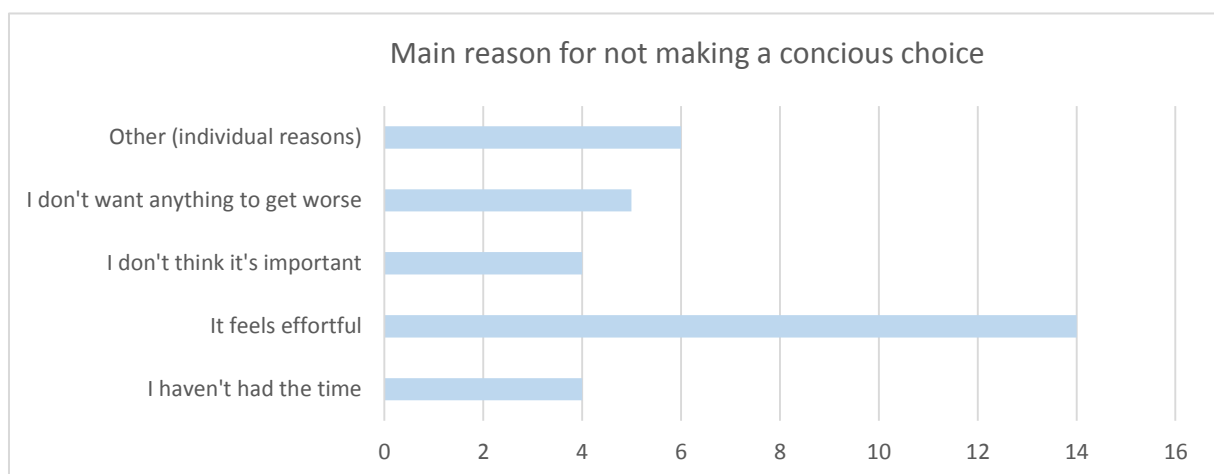
### Cognitive Effort

One of the explanations of why consumers tend to not switch away from the default alternative is that it would demand too much cognitive effort to do so. This seems to be somewhat true for the respondents as even respondents who had already made a choice regarding their premium pension still responded to why it felt effortful to make a choice. Moreover, the leading reason to why it felt effortful was simply that the respondents did not have the energy to engage (45.5%), suggesting further limitation by cognitive effort.

Category	Frequency	Percentage
Thinking about making a choice regarding my premium pension feels		
Good, I already have	14	32,6%
Good, I will soon	1	2,3%
Effortful, I will soon	6	14,0%
Effortful, I will at some point	15	34,9%
Effortful	7	16,3%
If you think it feels effortful, why do you think so? (33 respondents)		
Too much information	2	6,1%
Don't understand the system	8	24,2%
No one has explained how to do it	6	18,2%
Don't have the energy to engage	15	45,5%
Other	2	6,1%

Table 10 Cognitive effort among the respondents

The fact that it felt too effortful was also the leading main reason to why the respondent's had not made a conscious choice yet (Graph 6).



Graph 6 Main reason among the respondents for not making a conscious choice

### 4.3 Calculations

H<sub>1</sub>: The investors in the premium pension system are not aware of the risk level of AP7

Table 13: Variables influencing the estimated risk level of AP7		B coefficient	.sig
Dependent variable	Estimated risk level of AP7		
Independent variables	Interest in finance in general	.749	.001

Table 11 Results from SPSS calculation: Variables influencing the estimated risk level of AP7

It has in the descriptive results already been established that the majority of the respondents in the study are unaware of the risk level of AP7. As a second step, a linear regression analysis was performed to determine what variables might influence the respondents' estimated risk level of AP7.

Upon performing the linear regression analysis on available variables, the individual's interest in finance in general is the only one of statistical significance. As the respondent's interest in finance increase, her or his estimated risk of AP7 increase too.

As only three percent of the respondents were aware of the risk level of AP7, the first hypothesis is accepted.

H<sub>2</sub>: The respondents' involvement levels will affect how they interpret the ambiguous text

In order to determine what variables influence how the respondents interpret the ambiguous text, a binary logistic regression was performed.

Table 14: Text interpretation		B coefficient	.sig
Dependent variable	Need for personal responsibility		
Independent variables			

Table 14 Result from SPSS Calculation: Variables influencing the need for personal responsibility

No variables were found significant in explaining the interpretation of the text as "It is important to take personal responsibility for one's premium pension".

Table 15: Variables influencing the conscious choice		B coefficient	.sig
Dependent variable	Need for further action		
Independent variables	Perceived influence over premium pension	1.286	.029
	Educational level	-1.846	.008

Table 15 Result from SPSS Calculation: Variables influencing the need for further action

Two variables were found to be significant for the respondent to interpret the text as if there is a need for further action, or to respond that they had already acted. The most significant variable was the educational level, where an increase in the respondent's educational level decreased the probability of the respondent interpreting the text as that there is a need for further action. The other significant variable was perceived influence over one's premium pension where an increased perceived influence meant an increased likelihood of the interpretation that there is a need for further action or that the respondent already have acted.

As the respondent's involvement level have no significant effect on his or her text interpretation, the second hypothesis is rejected.

H<sub>3</sub>: The investors' involvement levels will influence whether or not they have made a conscious Choice

In order to determine what variables influence whether or not the respondents have made a conscious choice, a binary logistic regression was performed.

Table 16: Variables influencing the conscious choice		B coefficient	.sig
Dependent variable	Conscious choice		
Independent variables	Age	2.142	.003
	Interest in one's premium pension	2.865	.013

Table 16 Result from SPSS Calculation: Variables influencing the conscious choice

The results showed that age had the most significance for whether a respondent have made a conscious choice or not where an increased age equals an increased likelihood of having made a choice. The only other significant variable was interest in one's premium pension where each improvement on the scale of 1 to 5 meant that the respondent were 2.87 times more likely to have made a conscious choice.

As the respondent's involvement level have no significant effect on whether he or she have made a conscious choice, the third hypothesis is rejected.

H<sub>4</sub>: The investors with a low involvement level are likely to be hindered by the default bias

In the descriptive section of the study it was found that the only presence of the default bias in the data was that of Cognitive Effort. In order to determine what variables influence the perceived cognitive effort among the respondents, a binary logistic regression was performed.

Table 17: Variables influencing perceived cognitive effort		B coefficient	.sig
Dependent variable	Effortful as main reason for not having made a choice		
Independent variables	Interest in one's premium pension	1.236	.016
	Perceived importance of making a decision regarding one's premium pension	-1.392	.040

Table 17 Result from SPSS Calculation: Variables influencing perceived cognitive effort

The calculation showed that there are two factors with a statistically significant effect on how effortful the choice is perceived. First, it is the individual's interest in his or her premium pension which has the most significant effect. Here, every increase on the 5 step scale increases the likelihood of the respondent feeling like the decision is effortful. Secondly, the perceived importance of making the decision instead decrease the cognitive effort for every increase on the 5 step scale.

As cognitive effort, one of the three possible explanations for the default bias, have such a big impact on the respondents, the fourth hypothesis is accepted.

#### 4.4 Summary: Independent Variables of Significance in the Study and Rejection or Acceptance of Hypotheses

Table 18 offers a summary of the independent variables in the study and how they affect their respective dependent variable. The only independent variable of significance for more than one dependent variable is the respondent's interest in his or her premium pension which both increase the likelihood of the respondent having made a conscious choice and the perceived cognitive effort.

Table 18: Independent Variables of Significance in the Study	
Variable	Effect if increased
Age	Increased likelihood of conscious choice
Interest in finance in general	Increased likelihood of estimating a higher risk level of AP7
Interest in one's premium pension	Increased likelihood of conscious choice Increased likelihood of perceived cognitive effort
Perceived influence over one's premium pension	Increased likelihood of interpretation where action is needed
Educational level	Decreased likelihood of interpretation where action is needed
Perceived importance of making a conscious decision regarding one's premium pension	Decreased likelihood of perceived cognitive effort

*Table 18 Summary of independent variables of Significance in the Study*

Table 19 offers a summary of the rejection or acceptance of the hypotheses. Two hypotheses,  $H_2$  and  $H_3$ , were rejected whilst the other two hypotheses,  $H_1$  and  $H_4$  was accepted. The fourth hypothesis, that investors with a low involvement level are likely to be hindered by the default bias, was accepted because of the impact of cognitive effort.

Table 19: Rejection or acceptance of hypotheses	
Hypothesis	Result
$H_1$ : The investors in the premium pension system are not aware of the risk level of AP7	Accepted
$H_2$ : The respondents' involvement levels will affect how they interpret the ambiguous text	Rejected
$H_3$ : The investors' involvement level will influence whether or not they have made a conscious choice	Rejected
$H_4$ : The investors with a low involvement level are likely to be hindered by the default bias	Accepted

*Table 19 Summary of rejection or acceptance of the hypotheses in the study*

## 5. Analysis

*In the analysis chapter the findings of the result chapter are discussed and related to the theoretical framework. The chapter is sorted according to the hypotheses.*

*H<sub>1</sub>: The investors in the premium pension system are not aware of the risk level of AP7*

As seen in graph 5, only three percent of the respondents was aware of the actual risk level of AP7, whilst the majority (57.6 percent) estimated the fund to have a risk level of 1 to 3. These findings support the hypothesis that individuals might behave as they are more risk willing within the premium pension system (Fondbolagens förenings pensionsarbetsgrupp, 2015) simply because they are not aware of the fact that they are taking on such high risks.

Further, there was no statistically significant relationship between the estimated risk level of AP7 and if the respondent had made a conscious choice or not. This is interesting as 52 percent of women and 35 percent of men consider a low risk level to be the most important factor upon investing in mutual funds (TNS Sifo Prospera, 2014). However, these numbers were developed for mutual fund investors in general and not within the premium pension system. Further, 46 percent of the respondents in TNS Sifo Prospera (2014)'s investigation mention risk level as a highly important pre purchase factor, but in this study, only one person seem to be aware of the actual risk level of the fund. However, choosing AP7 is a non-choice, i.e. as there for a majority of the respondents with AP7 was not an active decision to choose this fund, they are less likely to have performed any pre purchase research at all.

The fact that an increased interest in finance increases the estimated risk level of AP7 might be a question of domain knowledge, i.e. a person with a higher interest in finance might know that AP7 have a high risk level.

*H<sub>2</sub>: The respondents' involvement levels will affect how they interpret the ambiguous text*

*The first question in the survey: Interpreted need for personal responsibility*

No available variable could on a statistically significant level explain how the respondent would interpret the ambiguous text when it comes to responsibility despite Hirshleifer's (2001) previously established conclusions. This means that neither the respondent's level of involvement, i.e. the perceived personal relevance (Celsi & Olson, 1988), nor the respondent's domain knowledge have any effect on whether the respondent interpret the text as that there is a need for personal responsibility or not. 65 percent of the respondents felt that "it is important to take responsibility for one's premium pension" after reading the text (Figure 2), but whether the respondent were likely to feel this way or not could not be explained by any other variable.

A possible explanation for the somewhat surprising results is that individuals with a low involvement level still think that it is important to take personal responsibility for one's premium pension, i.e. responsibility feels important but not highly relevant.

Another explanation is that the high percentage of individuals who feel that personal responsibility is important are influenced by the wording of the ambiguous text. As the text ends with the sentence "As you can influence the size of your premium pension yourself it could be important, despite being a smaller part of your total pension" (translated) (Appendix 1). Since the text expresses that you can influence your premium pension



yourself, individuals with a low involvement might feel that personal responsibility is important after reading the text but not in general.

Of course, the first explanation is the most satisfying one as it implies an awareness of the importance of making a conscious decision in order to avoid worry and possible future feelings of disappointment and betrayal.

#### *The second question in the survey: Interpreted need for further action*

Two variables were found to influence the interpretation regarding if there was a need for further action or not. The most significant one was the respondent's educational level and the second variable the respondent's perceived influence over their premium pension.

The fact that an increased educational level decrease the probability of an interpretation where there is a need for further action is very interesting. At first, one might assume that this relationship is related to age, where less young respondents have made a conscious choice regarding their premium pension (Pensionsmyndigheten, 2014) and because of the socioeconomic trend of inflation in education might have a higher educational level. As a possible answer for the question was that it feels good to already have made a decision, it is possible that more respondents who had made a conscious choice made the interpretation that there is a need for further action. However, upon performing a linear regression analysis with educational level as the dependent variable, the independent variable of age was not statistically significant i.e. age could not explain educational level.

Another explanation could be that individuals with a higher educational level might have a higher salary and thereby a larger degree of financial security. Thereby, the premium pension might not feel as important as other personal savings or the larger part of the income pension.

The other statistically significant variable, perceived influence over premium pension, which increase the probability of the interpretation that there is a need for further action is more self-evident. If one thinks taking action will in fact influence the outcome of something one is more likely to take action than if one does not think it matters.

#### *Rejection of the Null Hypothesis*

As concluded by the findings in the binomial logistic regressions, there is in this study no clear link between the respondents' involvement levels and their interpretations of the ambiguous text. It is not possible to determine if this is because of the collected data or because such a link simply does not exist.

If one were to assume that such a link does not exist, contradicting the supporting arguments in section 2.4, it could be because self-deception biases are not dominant in this setting. However, if the default bias would dominate over self-deception biases in this setting, there shouldn't be a majority of the respondents who felt that they needed to take responsibility or action. These statistics mean that the respondents felt like they needed to take responsibility and action, but this was in this study not related to their involvement nor their domain knowledge.

H3: The investors' involvement level will influence whether or not they have made a conscious choice

The findings regarding which factors might influence whether or not the respondent had made a conscious choice regarding their premium pension are somewhat expected despite not being related to the investor's involvement level as argued in section 3.7.1. In their investigation 2014, the Retirement Authority stated that the investors who chooses to invest in other funds often do so later in life (Pensionsmyndigheten, 2014). In their investigation Fondbolagens Förening (2015) came to the same conclusion; that the interest for one's premium pension increased over time. In this investigation, making an active choice is described as being interested in one's premium pension, which is in line with the fact that the second variable in the study, interest in one's premium pension, is significant.

#### *H<sub>4</sub>: The investors with a low involvement level are likely to be hindered by the default bias Cognitive effort*

As information that is statistical or abstract is also more cognitively costly (Hirshleifer, 2001) and information regarding mutual funds often consist of statistics, it might not be surprising that the strongest of Choi, et. al's (2003) and Yu, et. al's (2010) three symptoms of the default bias is cognitive effort.

When looking at independent variables affecting cognitive effort the most significant variable is the individual's interest in his or her premium pension which increases the perceived cognitive effort with increased interest. This is interesting as an increased interest in one's premium pension also increases the likelihood of the individual having made a conscious decision (Table 18). In other words are individuals who are more interested in their premium pension more likely to have made a conscious choice but also more likely to find it effortful to do so. A possible explanation for this could be that an individual who is interested in his or her premium pension also is aware of how much information it is out there, which makes the individual to perceive the task as more effortful than an individual who search less information.

The other significant variable is the perceived importance of making a decision regarding one's premium pension. The more important the respondent feels it is to make a decision, the less effortful it feels to do so. This relationship is somewhat logical, but not completely self-evident. One might assume that important decisions consumes more cognitive effort than unimportant ones, but this is, according to the study, apparently not the case within the premium pension system.

## 6. Conclusions

The results of the study led to the rejection of two hypotheses and the acceptance of the remaining two. The rejected hypotheses regarded the connection between involvement and self-deception and involvement and the conscious choice ( $H_2$  and  $H_3$ ). These findings suggest that when presented with new information consumers do not interpret it in line with their current involvement level and that the involvement level plays no part in whether or not the consumer have made a conscious choice.

The two remaining hypotheses were on the other hand accepted. They concerned the unawareness of respondents within the system ( $H_1$ ) and the influence of the default bias ( $H_4$ ). The first hypothesis was accepted as the majority of the respondents to the survey proved unaware of the high risk level of the default option. The fourth hypothesis was accepted due to the influence of cognitive effort over the respondents, whilst neither implicit advice nor loss aversion had any notable impact on the respondents.

## 7. Discussion

*The discussion chapter of the thesis aim to take off in the conclusions of the study and strive to apply these findings on the current situation within the Swedish premium pension system.*

The acceptance of the fourth hypothesis regarding the default bias means that the authorities might need to take the default bias, and especially the effects of cognitive effort, into consideration upon designing the communication to the investors in the premium pension system.

According to Choi, et al. (2003) a way to avoid the negative effects of the default bias to pick a default option that lies as far away from the best option for as many individuals as possible, as this increase then incentives to switch to a better option as soon as possible. In a way, this is exactly what the Retirement Authority is doing by choosing such a high risk level for the default option, at least for the 52 percent of women and 35 percent of men who perceive a low risk level to be the most important attribute of a mutual fund (TNS Sifo Prospera, 2014).

The problem with this strategy, regardless of whether it is an attempt to encourage a switch or the authority's sincere conviction of an optimal option, is that the consumers are unaware of it. Only very few respondents in the study was even close to guessing the default options actual risk level and the majority seemed to be convinced that AP7 is a low risk fund (Graph 4 and 5).

As previously discussed in the study, the danger of the unawareness of the investors does not only concern their monetary- but also their mental welfare. As long as there is a rising market and everyone receive good returns from AP7 there might not be a problem, but when the market starts falling, individuals might lose their trust in the system and the authorities when they realize how high the risk actually was. Further, decreased trust in the pension system and the Retirement Authority might also increase the respondents worry about their retirement.

The results from the study suggests that respondents with a larger interest in finance are more aware of the risk level of AP7 than others (Table 13). Therefore, the solution for the problem surrounding the risk level might be to simply inform the investors about the risk level and while doing so also point out the importance of making a conscious decision. As the perceived importance of decision increase, the likelihood of perceived cognitive effort decreases. In other words, it might simply be a marketing question – where clear communication could possibly hinder both economic- and mental welfare problems.

At the end of 2014, the investors who did not care about their premium pension enough to make a conscious choice was in control of 192 billion SEK. With no doubt, that is a huge amount of money to place in the hands of investors who neither know exactly in what the money is invested, nor the risk level of this investment. If the authorities wish to proceed with the premium pension system, which is by no doubt widely appreciated by the general public, they have a responsibility to ensure that the investors know what they are doing. This study shows that it might not be sufficient to suppose that the investors will find the information themselves. First of all simply because they don't seem to do so and secondly because they seem to perceive it as too effortful to try. Regardless of their involvement level the majority of the respondents seemed to find personal responsibility and further action

important, but still does not act. They seem involved but does not take action. Perhaps it is not because they do not think it is important, but because doing so is effortful and because they does not understand the consequences of not making a choice.

If the problem is as a matter of fact a consequence of lack of knowledge rather than involvement, it might too be solved by a more straight forward communication. If the information received by the consumers is open with the risk level of the default option and stress where to find information about making a choice, the relationship between the authorities and the consumers might grow stronger and improve the mental welfare of the worried consumers.

Lastly, the results of this study is not generalizable to the entire population due to the limitations of convenience sampling. Appropriate further research would therefore be to on a larger scale investigate the financial illiteracy among the investors and how big of an effect cognitive effort actually have on the investors.

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# Appendix 1: Results from the Pre-Test

## Presented texts

1.

”Premiepensionen är inkomstgrundad och baseras på dina pensionsrätter i premiepensionssystemet. Premiepensionens storlek beror på hur mycket som betalats in och hur de fonder du valt har utvecklats. Om du inte har gjort ett eget val av din premiepension placeras dina pengar i förvalsalternativet AP7 Såfa.

Premiepensionen är den del av den allmänna pensionen som du kan påverka själv genom hur du placerar dina pengar. Därför kan premiepensionen vara viktig, även om den är en mindre del av din totala pension.”

2.

Premiepensionen är en del av den allmänna pensionen och därför inkomstgrundad. Premiepensionens storlek beror dels på hur mycket som har betalats in, alltså hur hög inkomst du har haft, och dels på hur det går för de fonder du har valt att investera i. Om du inte väljer vilka fonder du vill investera i så investeras din pension automatiskt i förvalsalternativet AP7 Såfa. Eftersom du själv kan påverka hur stor din premiepension blir kan de vara viktig, även om den är en mindre del av din totala pension.

3.

Hur hög premiepension du får beror dels på din inkomst och dels på hur det går för dina fonder. Du kan själv välja vilka fonder din pension ska investeras i och om du inte väljer så investeras de i förvalsalternativet AP7 Såfa. Eftersom du själv kan välja vart din pension ska investeras kan du också själv påverka hur mycket premiepension du får och därför kan premiepensionen vara viktig, även om den är en mindre del av din totala pension.



## Responses

### Text 1

Läs nedanstående text:

När jag läser den här texten känner jag att: (5 svar)

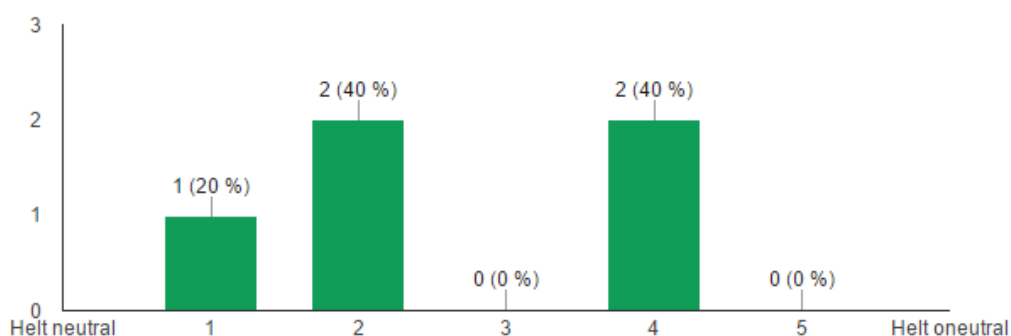


När jag läser den här texten känner jag att: (5 svar)



Om jag fick kategorisera den här texten på en skala där 1 är helt neutral och 5 är helt oneutral så skulle jag säga att informationen är:

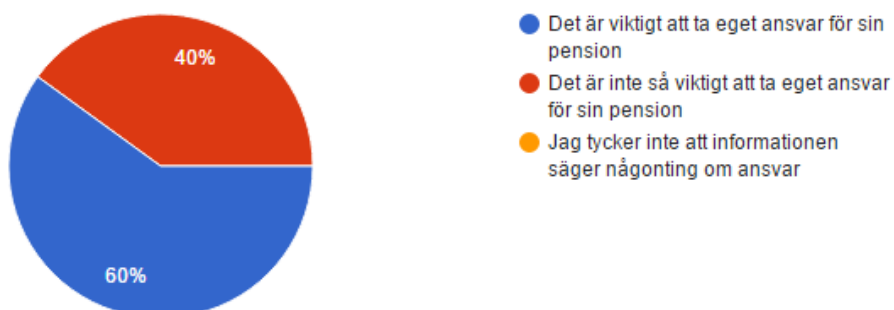
(5 svar)



## Text 2

Läs nedanstående text:

När jag läser den här texten känner jag att: (5 svar)

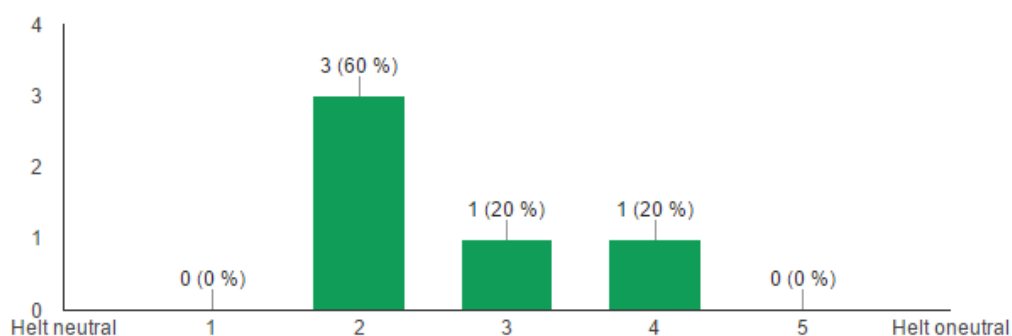


När jag läser den här texten känner jag att: (5 svar)



Om jag fick kategorisera den här texten på en skala där 1 är helt neutral och 5 är helt oneutral så skulle jag säga att informationen är:

(5 svar)



### Text 3

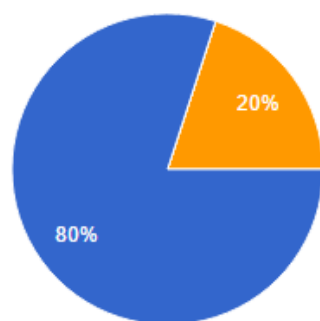
Läs nedanstående text:

När jag läser den här texten känner jag att: (5 svar)



- Det är viktigt att ta eget ansvar för sin pension
- Det är inte så viktigt att ta eget ansvar för sin pension
- Jag tycker inte att informationen säger någonting om ansvar

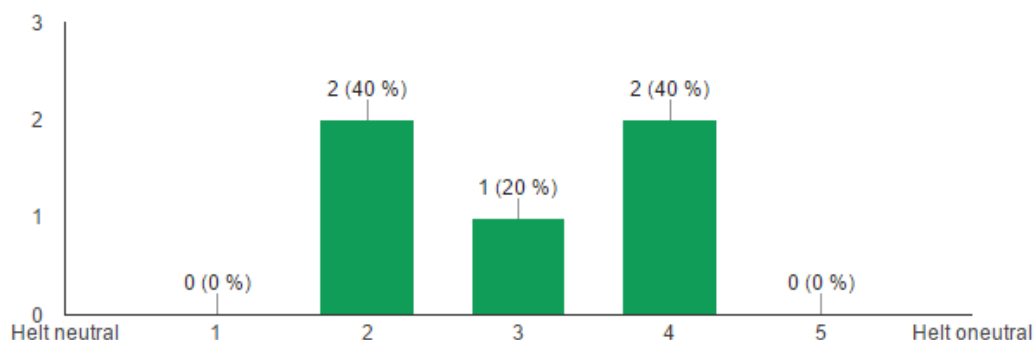
När jag läser den här texten känner jag att: (5 svar)



- Det är bäst att välja egna fonder
- Det är bäst att inte välja några egna fonder
- Jag tycker inte att informationen säger någonting om vad som är bäst

Om jag fick kategorisera den här texten på en skala där 1 är helt neutral och 5 är helt oneutral så skulle jag säga att informationen är:

(5 svar)



## Appendix 2: Results from the Survey

On all presented scales 1 is the lowest option, e.g. lowest interest level, worst feeling etc. and 5 the highest.

### Enkätundersökning premiepension

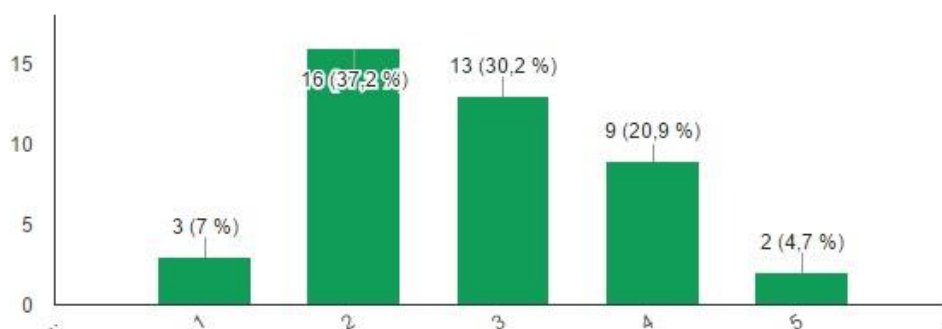
Målet med den här enkäten är att få reda på dina tankar om några olika frågor. Det finns inga rätta eller fel svar, så svara vad som är rätt för dig! När du vill lämna in ditt svar trycker du på "skicka" in längst ned på sidan.

Den här enkätundersökningen är en del av en kandidatuppsats i företagsekonomi vid Handelshögskolan vid Göteborgs universitet.

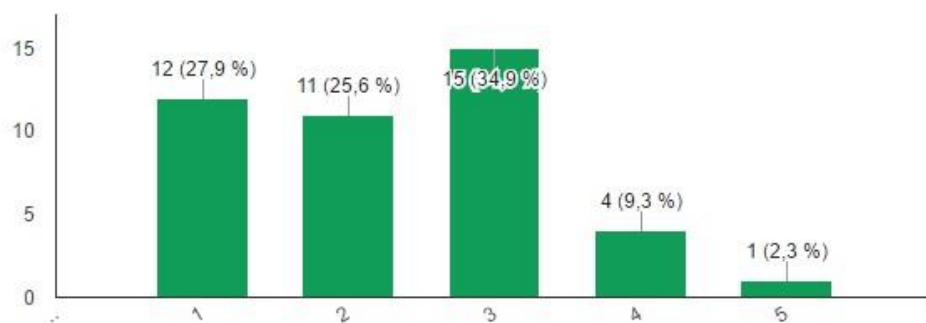
Vid frågor kontakta Elisabeth Håkansson:

[elisabeth-hakansson@live.se](mailto:elisabeth-hakansson@live.se) / [gushakanel@student.gu.se](mailto:gushakanel@student.gu.se)

Hur intresserad är du av finans i allmänhet? (43 svar)

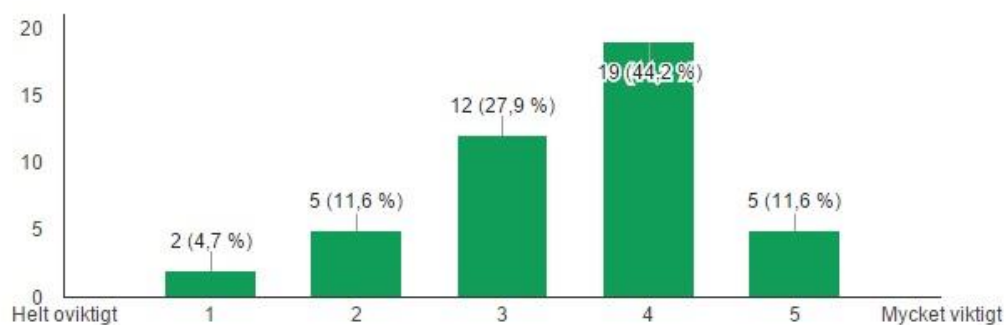


Hur intresserad är du av din premiepension i synnerhet? (43 svar)



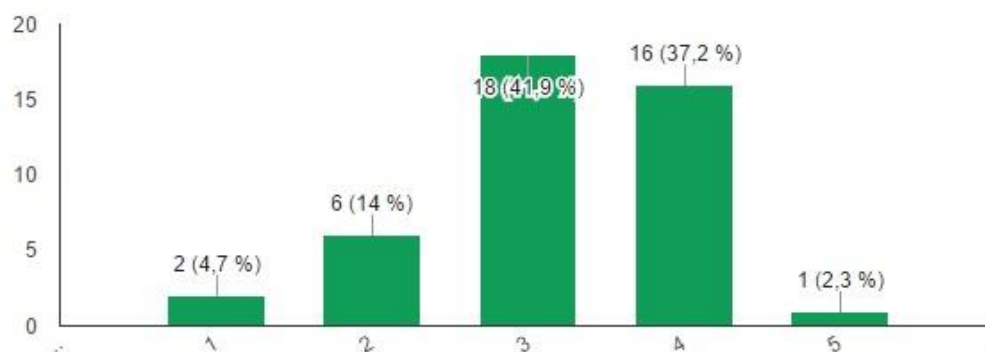
Hur viktigt tror du att det är att fatta ett medvetet beslut gällande sin premiepension?

(43 svar)

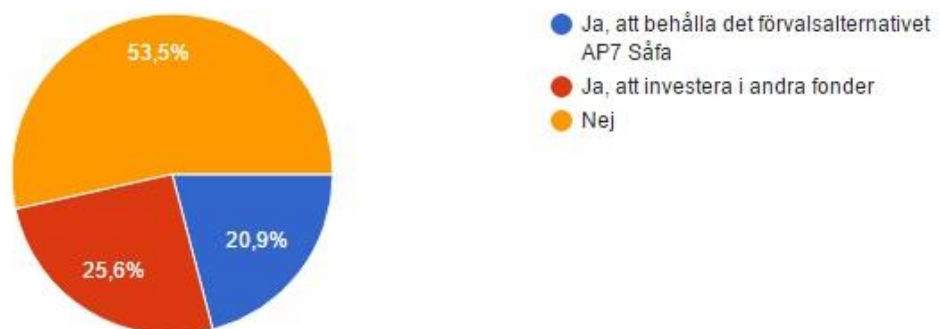


I vilken utsträckning tror du att du har möjlighet att påverka din premiepension?

(43 svar)



Har du gjort ett aktivt val gällande din premiepension? (43 svar)



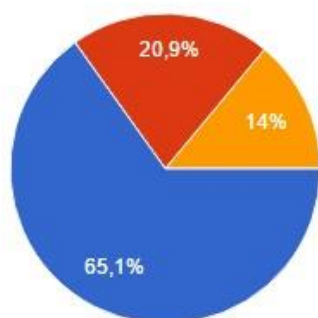
## Läs nedanstående text:

Premiepensionen är en del av den allmänna pensionen och därför inkomstgrundad. Premiepensionens storlek beror dels på hur mycket som har betalats in, alltså hur hög inkomst du har haft, och dels på hur det går för de fonder du har valt att investera i. Om du inte väljer vilka fonder du vill investera i så investeras din pension automatiskt i förvalsalternativet AP7 Såfa. Eftersom du själv kan påverka hur stor din premiepension blir kan de vara viktig, även om den är en mindre del av din totala pension.

## Efter att ha läst ovanstående text, känner jag att:

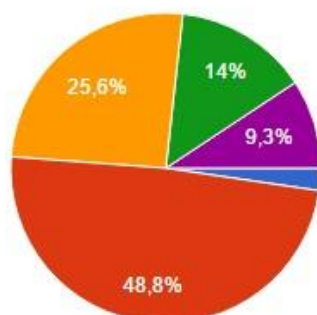
- ☐ Det är viktigt att ta ansvar för sin premiepension
- ☐ Man behöver inte ta ansvar för sin premiepension
- ☐ Jag tycker inte att texten säger någonting om det

## Efter att ha läst ovanstående text, känner jag att: (43 svar)



- Det är viktigt att ta ansvar för sin premiepension
- Man behöver inte ta ansvar för sin premiepension
- Jag tycker inte att texten säger någonting om det

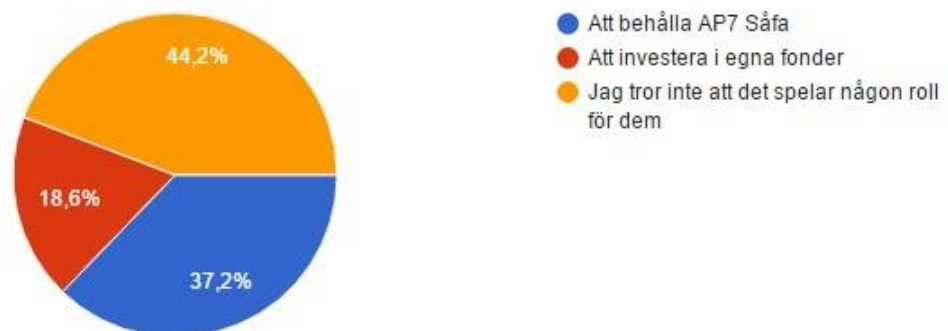
## Efter att ha läst ovanstående text, känner jag att: (43 svar)



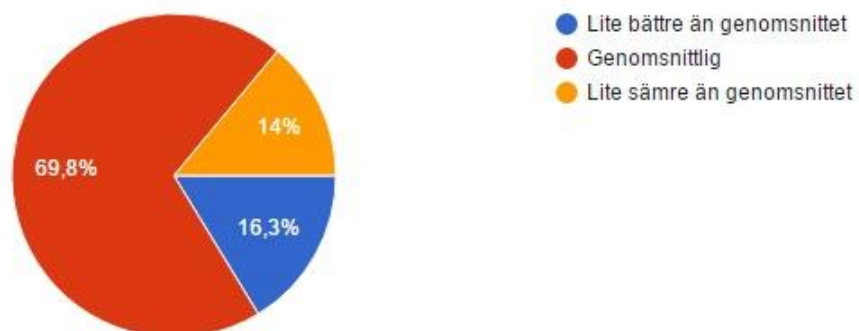
- Jag behöver inte fatta något beslut om min premiepension
- Jag skulle nog behöva fatta ett beslut om min premiepension
- Det är bra att jag redan har fattat ett beslut om min premiepension
- Det spelar egentligen ingen roll om man fattar något beslut eller inte
- Jag tycker inte att texten säger någonting om det

Härefter följande frågor är fristående från den presenterade texten. (De har ingenting med den att göra).

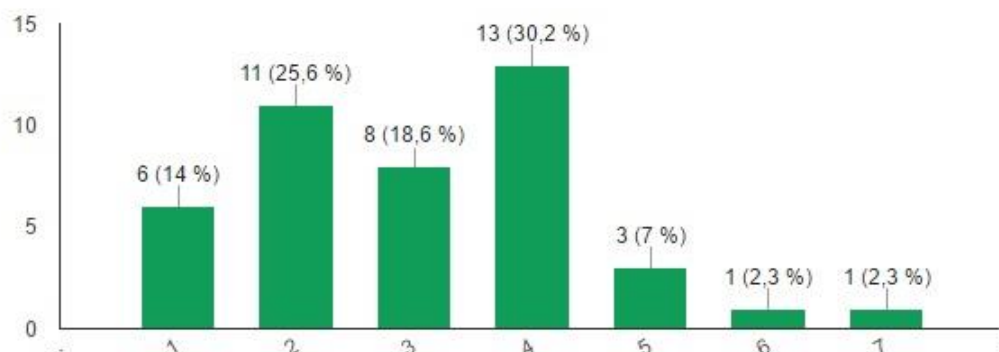
Jag tror att Pensionsmyndigheten tycker att man ska välja: (43 svar)



Jämfört med andra fonder tror jag att AP7 Såfa är: (43 svar)



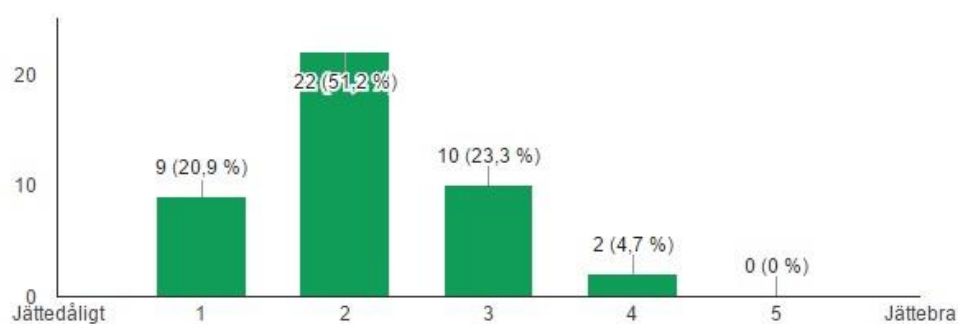
Hur hög risk tror du att AP7 Såfa har på en skala från 1 - 7? (43 svar)





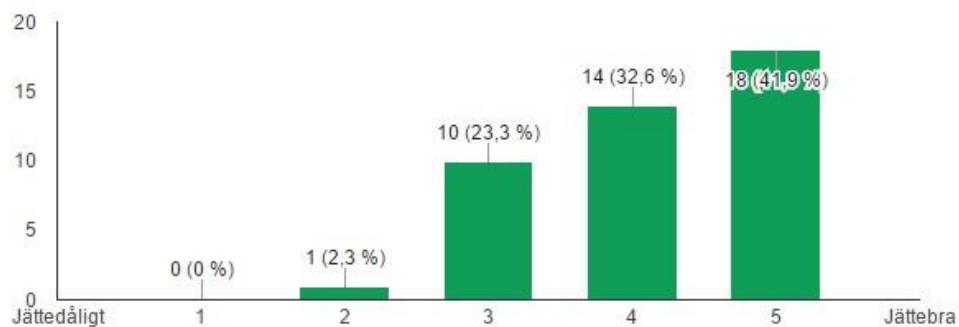
Hur tror du att det skulle kännas om du valde andra fonder, och de gav ett sämre resultat än AP7 Såfa?

(43 svar)



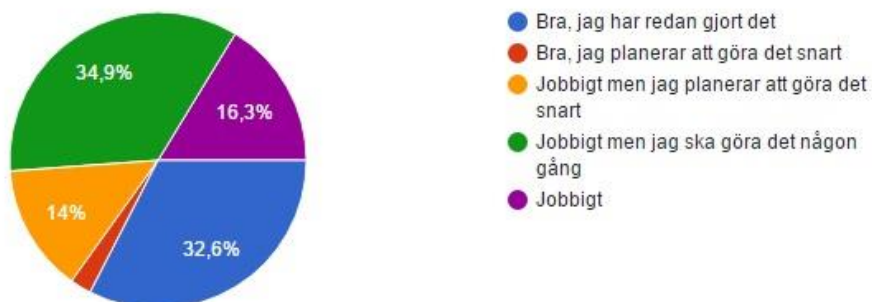
Hur tror du att det skulle kännas om du valde andra fonder, och de gav ett bättre resultat än AP7 Såfa?

(43 svar)

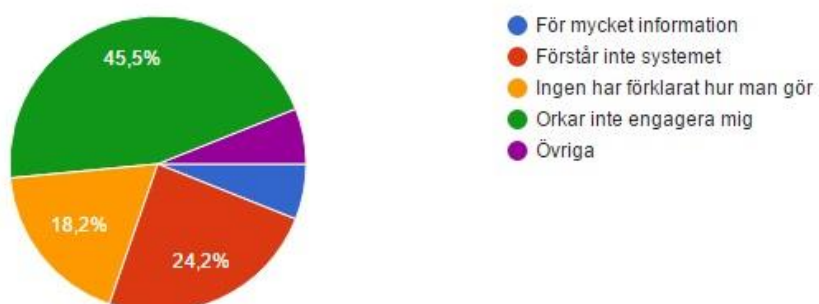


När jag tänker på att göra ett medvetet val kring min premiepension känns det:

(43 svar)

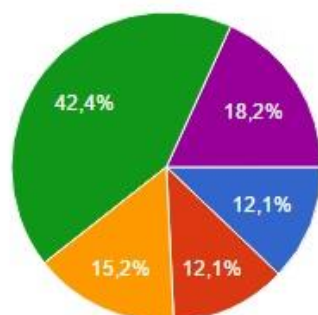


Om du tycker att det känns jobbigt, varför tycker du det? (33 svar)



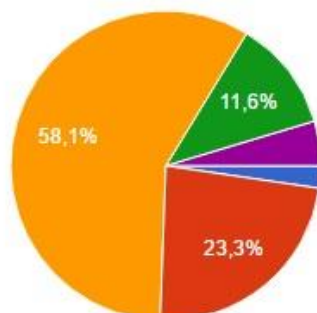
Om du inte har gjort ett medvetet val kring din premiepension, vilken skulle du säga att huvudanledningen är?

(33 svar)



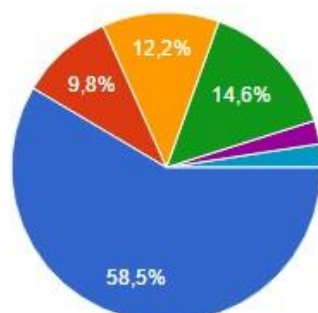
- Jag har inte haft tid
- Jag tycker inte att det är så viktigt
- Jag vill inte att det ska bli sämre
- Jag tycker att det känns jobbigt
- Övriga

Hur hög utbildning har du? (43 svar)



- Högstadium
- Gymnasium
- Kandidat
- Magister/Master
- Ytterligare utbildning

Hur gammal är du? (41 svar)



- 18 - 30
- 31 - 40
- 41 - 50
- 51 - 60
- 61 - 70
- 71 - 76

# Appendix 3: Other

## Calculations

Investors with the Default Option because "It just happened"

In TNS Sifo Prospera's (2014) investigation, 28 percent out of the 39 percent of the respondents who had the default option for their premium pension, AP7, claimed that it was because "it just happened".

$$\frac{28}{39} \approx 0,718$$

*Formel 1* . The respondents who have the default alternative because "it just happened" constitutes around 71.8 percent of the respondents with the default alternative.

$$245\,700\,000\,000 * 0,718 = 191\,891\,700\,000$$

*Formel 2* . When applied on the sum controlled by the investors with the default alternative (Pensionsmyndigheten, 2014), the equation shows that the consumers who have the default alternative because it just happened are in control of almost 192 billion SEK